

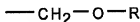
### REMARKS

Claims 1-6 are pending in the present application. Reconsideration and withdrawal of the present rejections in view of the remarks presented herein are respectfully requested.

Present claim 1 recites a polymer compound comprising:

an alkali soluble group (i), wherein

at least one hydrogen atom of a hydroxyl group in the alkali soluble group (i) is protected by an acid dissociable, dissolution inhibiting group (ii) represented by a general formula (1):



(1)

(wherein R represents an organic group containing no more than 20 carbon atoms and at least one hydrophilic group), and

wherein the polymer compound exhibits changed alkali solubility under the action of acid.

Thus, the acid dissociable, dissolution inhibiting group contains both a dioxymethylene structure and a hydrophilic group. In other words, the polymer compound recited in Claim 1 includes a protected alkali soluble group (i) containing the structure -O-CH<sub>2</sub>-O-R, wherein R contains at least one hydrophilic group such as -OH. The above structure can be cleaved to -O- of the alkali soluble group (i) and -CH<sub>2</sub>-O-R of the acid dissociable, dissolution inhibiting group (ii).

#### Rejections under 35 U.S.C. §102(b)

##### **Feiring et al. (US 6,790,587)**

Claims 1-6 were rejected under 35 U.S.C. § 102(b) as being anticipated by Feiring et al. (US 6,790,587). In contrast to present claim 1, Feiring et al. does not disclose an acid dissociable, dissolution inhibiting group containing both a dioxymethylene structure and a hydrophilic group. Column 10 of Feiring et al. discloses specific examples of a monomer containing a fluor alcohol functional group. However, none of these examples contain a dioxymethylene structure as recited in the present claims. Column 12, lines 5-15 of Feiring et al.

disclose that an alpha-alkoxyalkyl ether group is a preferred protecting group for the fluoroalkyl group, and that the resulting protected fluoroalcohol group has the following structure:

$-C(R_4)(R_4')O-CH_2OCH_2R_5$  (wherein,  $R_5$  is hydrogen or a linear or branched alkyl group of between 1 and 10 carbon atoms.)

Although this structure contains a dioxymethylene group, there is no hydrophilic group within  $R_5$ . In addition, Column 12 of Feiring et al. discloses that an effective protecting group is methoxy methyl ether (MOM) (which contains no hydrophilic group), and the fluoroalcohol groups protected by methoxy methyl ether are used in Examples 12, 14, 15, 20, 21, 23, and 25-29 of Feiring et al. Since this reference does not disclose (or suggest) an acid dissociable, dissolution inhibiting group containing both a dioxymethylene structure and a hydrophilic group, claims 1-6 cannot be anticipated by this reference.

**Dammel et al. (US 6,686,429)**

Claims 1-6 were rejected under 35 U.S.C. §102(b) as being anticipated by Dammel et al. (US 6,686,429). The Office Action alleges that Dammel et al. disclose fluorinated alcohol monomers in columns 5, 6 and 15, and in claim 5, that appear to meet the instant claim limitations. However, none of these compounds Column 15 (Claim 5) of Dammel et al. discloses a monomer containing a carboxyl group or carbonate ester which is protected by a tert-butyl group. In addition, the monomers of the synthesized copolymers are protected by a tert-butyl group in Examples 4, 6, and 7 of Dammel et al. None of the monomers disclosed by Dammel et al. contain both a dioxymethylene structure and a hydrophilic group as recited in the present claims. In addition, Dammel et al. does not suggest any such compounds. Thus, claims 1-6 cannot be anticipated by this reference.

In view of the comments presented above, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. §102(b).

Unexpected results

Although the claims have only been rejected on the basis of anticipation, Applicants wish to note that the presently claimed invention also has unexpected, advantageous results that

would effectively rebut an allegation of obviousness, were such an objection to be raised. As mentioned above, the structure  $-O-CH_2-O-R$  can be cleaved to  $-O-$  of the alkali soluble group (i) and  $-CH_2-O-R$  of the acid dissociable, dissolution inhibiting group (ii). This cleavage unexpectedly enables the polymer compound recited in Claim 1 to provide a fine pattern with high resolution, because alkali solubility is greatly changed before and after exposure in the system of a chemically amplified positive resist. Also, it is possible to prevent thickness loss of the resist pattern, to improve the adhesion of a resist pattern to a substrate due to the effect of an introduced hydrophilic group and to reduce developing defects due to improved affinity of the resist pattern to an alkali developing solution (see page 5 line 19 to page 6 line 2 of the present specification). These unexpected results are neither disclosed nor suggested by Feiring et al. or Dammel et al., alone or in combination, and could not have been predicted based on these references. Thus, the presently claimed invention is nonobvious over these references.

#### CONCLUSION

Applicants submit that all claims are in condition for allowance. However, if minor matters remain, the Examiner is invited to contact the undersigned at the telephone number provided below. If any additional fees are required, please charge these to Deposit Account No. 11-1410. Should there be any questions concerning this application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: 4/21/09

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